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REMARKS

Claims 1-29 are currently pending in the subject application and are presently under consideration. A marked-up version of all pending claims is found at pages 2-9 of this Reply. Claims 1, 3, 5, 12, 17, 22 and 23 have been amended herein for purposes of clarity. New claim 30 has been added to recite the invention in means plus function format.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-11, 17-29 Under 35 U.S.C. §103(a)

Claims 1-11, 17-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kuchkuda *et al.*, (U.S. 5,872,902) in view of Nishiyama, (U.S. 5,949,442). This rejection should be withdrawn for at least the following reasons. Neither Kuchkuda *et al.* nor Nishiyama, alone or in combination, teach or suggest each and every limitation recited in the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The present invention relates to the field of video displays and more particularly to improved methods and apparatus for video underflow detection in a raster engine. Independent claim 1 recites, "*a control logic system associated with the FIFO memory and adapted to provide an underflow indication according to the first input and output*

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counter values.” Independent claims 17 and 25 recite similar language. The raster engine of the claimed invention can “provide an *indication* to a host processor that the raster engine is *underflowing or about to underflow, or that a lockup condition exists* in the raster engine. Input and output counters in the raster engine first in first out (FIFO) memory system, which interface the host bus with the raster engine video systems, are read by an *underflow detection system* to provide an *underflow indication according to the counter values*. The underflow detection and indication system of the claimed invention minimizes or reduces undesirable visual effects associated with a starved or empty raster engine, and *allows remedial and/or notification measures to be taken in a computer system employing the raster engine.*” (See e.g., page 3, lines 21-30.) Kuchkuda *et al.* does not teach or suggest utilizing FIFO counter values, providing an *underflow indication*, or that an *underflow indication* is based on FIFO counter values as in applicant’s claimed invention.

The Examiner contends that Col. 19, line 1 of Kuchkuda *et al.* teaches a control logic system adapted to provide an underflow (and overflow) indication. However, the only mention of underflow, which occurs in the cited section of Kuchkuda *et al.*, (as well as any other section thereof) states that the “... six basic functions supported [by the RGBAUV blender block] are alpha blend, alpha unblend, X pixel operations, overflow and *underflow protection*, bilinear interpolation of texture texels, fog and haze and depth cueing.” (See Col. 18, line 66 – Col. 19, line 2.) Contrary to the Examiner’s contentions, *underflow protection* and *underflow indication* are not the same. *Underflow indication* can be utilized to determine a *cause* of underflow, thus permitting *corrective action* to be taken. Kuchkuda *et al.* does not teach or suggest such aspects of applicant’s claimed invention.

Nishiyama fails to overcome the aforementioned deficiencies of Kuchkuda *et al.* Nishiyama discloses a system wherein counters are utilized to facilitate smooth scrolling of display information in a display device. The Examiner relies upon Column 5, lines 52-53 of Nishiyama to teach control of an underflow indication. (“...*prevent the occurrence of an interruption due to the next time-up of the timer 6.*”) Nothing in the above language suggests that Nishiyama is capable of *providing an underflow indication*, let alone

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providing an underflow indication according to the first input and output counter values as in applicant's invention as recited in the subject claims. Nishiyama's "prevention of the occurrence of an interruption" merely reduces the possibility of an underflow occurrence when a clock resets - setting the P6 output to zero when the counter is full *does not indicate* underflow. Furthermore, Nishiyama fails even to mention or suggest underflow, let alone underflow detection or *indication*.

In view of the above, it is readily apparent that neither Kuchkuda *et al.* nor Nishiyama, alone or in combination, make obvious applicant's invention as recited in independent claims 1, 17 and 25 (and claims 2-11, 18-24, and 26-29, which depend respectively there from). Therefore, this rejection should be withdrawn.

II. Rejection of Claims 12-16 Under 35 U.S.C. §103(a)

Claims 12-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kuchkuda *et al.*, U.S. (5,872,902) in view of Nishiyama, U.S. (5,949,442) as applied to claim 1 above, and further in view of Rudin *et al.*, U.S. (5,959,640) and Reddy, (U.S. 6,195,079). This rejection should be withdrawn for at least the following reasons. Claims 12-16 depend from independent claim 1 - in view of at least the above comments, the subject invention as recited in these dependent claims is not made obvious by Kuchkuda *et al.* and/or Nishiyama, alone or in combination.

Neither Rudin *et al.* nor Reddy overcome the deficiencies of Kuchkuda *et al.* and Nishiyama with respect to independent claim 1. Specifically, neither reference teaches or suggests "*a control logic system associated with the FIFO memory that provides an underflow indication according to the first input and output counter values.*" Therefore, this rejection should be withdrawn.

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CONCLUSION

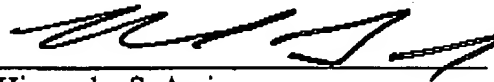
The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

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